

Abstract

The present invention concerns a rotor blade for a wind power plant having an aerodynamic profile comprising a rotor blade leading edge and a rotor blade trailing edge. The invention also concerns a rotor blade tip for a rotor blade having an aerodynamic profile with a pressure and a suction side, wherein the rotor blade tip is curved or angled in its end region in the direction of the pressure side of the rotor blade.

In order further to reduce the levels of sound emission of wind power plants the rotor blade is curved or angled in its edge region in the direction of the trailing edge of the rotor blade in the plane of the rotor blade. In that respect the invention is based on the realisation that, in the case of a rotor blade which does not go to a point at the tip, the effective rotor blade area is maintained unreduced precisely in the outer region in which the effect is greatest. The curve or angling of the end region of the rotor blade however provides that the trailing edge is displaced rearwardly in the end region of the rotor blade so that the flow at the rotor blade trailing edge is detached with a time delay in the outer region.

Alternatively to attain the object of the invention a rotor blade can be developed in such a way that the 'outer region' narrows. That configuration of the rotor blade tip is based on the realisation that the decreasing blade depth results in a reduced flow around the blade tip as the energy thereof is previously distributed to the trailing edge vortices but at the same time the effective rotor blade area is also reduced. The angling of the rotor blade tip provides that the effective rotor blade depth remains at its optimum as far as the angled rotor blade tip.